



**INSTRUCTIONAL DESIGN GUIDE
FOR TEACHING AND LEARNING**

**UBD CURRICULUM DESIGN
INSTRUCTIONAL FRAMEWORK
BEST PRACTICE STRATEGIES
TECHNOLOGY FLUENCY AND
INTEGRATION**

Best Practices for Teaching and Learning

Instructional Framework and
Strategies

Esperanza Academy Charter School

Table of Contents

Best Practices Explained	3
Curriculum Design: UbD.....	3
Marzano Nine Effective Teaching Strategies	4
Academic Vocabulary.....	6
Lesson Planning.....	7
Lesson Planning Template	12
12 Power Words!	13
Teaching Strategies A to Z.....	15
Writing Strategies	17
Collins Writing.....	17
Writing Across the Curriculum with RAFTs	18
Cornell Note-taking System	18
Interactive Student Notebook Guidelines	19
Performance Tasks.....	21

Instructional Framework & Strategies

Best Practices Explained

The term “best practices” embraces specific educational ideas and activities while explicitly ruling others out, is rooted in research, and is manifested through limited and distinctive classroom practices.

What does it look like?

The classroom is

Student centered	Holistic	Cognitive
Experiential	Social	Developmental
Reflective	Collaborative	Constructive
Authentic	Democratic	Challenging

Is has less of: whole class directed instruction, student passivity, worksheet devotion, reading textbooks only, and memorizing facts.

And has more of: experiential, hands-on learning, reading “real” books both fiction and non-fiction, students taking responsibility for setting learning goals, keeping records about those goals, and evaluating them often, where students have choice, and work in teams to collaborate.

Best practices are framed through curriculum design (Understanding by Design), and lesson planning with research-based strategies (Robert Marzano Essential Teaching Strategies, Penn Learning Network).

Curriculum Design: UbD

Unit Planning

Curriculum is being designed around backwards design where the assessment guides the construction of learning goals and measurement.

- I. Develop Your Unit Vision
- II. Create Your Summative Unit Assessment
- III. Translate Your Learning Goals Into Lesson Objectives
- IV. Sequence Your Content And Scaffold Your Lesson Objectives
- V. Schedule Your Objectives On The School Calendar
- VI. Create Your Beginning-Of-Unit Diagnostic Tool
- VII. Create A Tracking System For Your Objectives
- VIII. Continually Adjust Your Plan

Marzano Nine Effective Teaching Strategies

In *Classroom Instruction that Works: Research-based Strategies for Increasing Student Achievement*, Robert Marzano (2001) and his colleagues identify nine high-yield instructional strategies through a meta-analysis of over 100 independent studies. They determined that these nine strategies have the greatest positive affect on student achievement for all students, in all subject areas, at all grade levels. Marzano's nine high-yield instructional strategies are summarized in the table that follows.

Identifying Similarities and Differences
 Nonlinguistic Representations
 Summarizing and Note Taking
 Setting Objectives and Providing Feedback
 Reinforcing Effort and Providing Recognition
 Generating and Testing Hypotheses
 Homework and Practice
 Cues, Questions, and Advanced Organizers
 Cooperative Learning

High Yield Instructional Strategies	Research says	Examples
Identifying similarities and differences	Students should compare, classify, and create metaphors, analogies and graphic representations	T-charts, Venn diagrams, classifying, analogies, cause and effect links, compare and contrast organizers, QAR, sketch to stretch, affinity, Frayer model, etc.
Summarizing and note taking	Students should learn to delete unnecessary information, substitute some information, keep important information, write / rewrite, and analyze information.	Teacher models summarization techniques, identify key concepts, bullets, outlines, clusters, narrative organizers, journal summaries, break down assignments, create simple reports, quick writes, graphic organizers, column notes, affinity, etc.
Reinforcing effort and providing recognition	Teachers should reward based on standards of performance; use symbolic recognition rather than just tangible rewards.	Hold high expectations, display finished products, praise students' effort, encourage students to share ideas and express their thoughts, honor individual learning styles, conference individually with students, authentic portfolios, stress-free environment etc.
Homework and practice	Teachers should vary the amount of homework based on student grade level (less at the elementary level, more at the secondary level), keep parent involvement in homework to a minimum, state purpose, and,	Retell, recite and review learning for the day at home, reflective journals, parents are informed of the goals and objectives, interdisciplinary teams plan together for

	if assigned, should be debriefed.	homework distribution, etc
Nonlinguistic representations	Students should create graphic representations, models, mental pictures, drawings, pictographs, and participate in kinesthetic activity in order to assimilate knowledge.	Visual tools and manipulatives, problem-solution organizers, spider webs, diagrams, concept maps, drawings, maps, sketch to stretch, K.I.M., etc.
Cooperative learning	Teachers should limit use of ability groups, keep groups small, apply strategy consistently and systematically but not overuse.	Integrate content and language through group engagement, reader's theatre, pass the pencil, circle of friends, cube it, radio reading, shared reading and writing, plays, science projects, debates, jigsaw, group reports, choral reading, affinity, etc.

High Yield Instructional Strategies	Research says	Examples
Setting objectives and providing feedback	Teachers should create specific but flexible goals, allowing some student choice. Teacher feedback should be corrective, timely, and specific to a criterion.	Articulating and displaying learning goals, KWL, contract learning goals, etc.
Generating and testing hypothesis	Students should generate, explain, test and defend hypotheses using both inductive and deductive strategies through problem solving, history investigation, invention, experimental inquiry, and decision making.	Thinking processes, constructivist practices, investigate, explore, social construction of knowledge, use of inductive and deductive reasoning, questioning the author, etc.
Questions, cues, and advance organizers	Teachers should use cues and questions that focus on what is important (rather than unusual), use ample wait time before accepting responses, eliciting inference and analysis. Advance organizers should focus on what is important and are more useful with information that is not well organized.	Graphic organizers, provide guiding questions before each lesson, think alouds, inferencing, predicting, drawing conclusions, skim chapters to identify key vocabulary, concepts and skills, A.C.E. anticipation guide, annotating the text, etc.

Academic Vocabulary

Integrating academic vocabulary is an important component of teaching and learning. In order for students to fully understand concepts the vocabulary should be explicitly taught.

Resources

<http://kms.sdcoe.net/getvocal/73-DSY.html>

<http://www.ncte.org/library/NCTEFiles/Resources/Journals/VM/0204-may2013/VM0204How.pdf>

http://www.scoe.org/docs/ah/AH_kinsella2.pdf

<http://www.slideshare.net/carlosrmartinez5/tools-for-teaching-academic-vocabulary>

Best Practices

Word Walls (digital with [WallWisher](#))

Morphology maps

Word Sorts

Vocabulary Journals

Frayer and Fryer Diagrams

Reading Aloud

Establishing Background Knowledge

Concept Maps

4-2-1 Summarizer

Multimedia Vocabulary with [Thinglink](#)

Create and store word lists with [Flashcard Stash](#)

Create vocabulary cards using Google Slides https://drive.google.com/previewtemplate?id=1-AdjRQV_OuCxnq5CRFnXibeT5wJWhTmJzlm93I3QPIU&mode=public

Lesson Planning



4 Lenses of Learning

Every lesson plan, every day, should provide students with rich learning opportunities that reflect the following 4 lenses that brain research tells us impact learning to the greatest extent.

Learning is Meaning-Centered

- Are the students able to find meaning in the material with which they are engaged?
- Are they able to connect the topic at hand with their own lives?

Learning is Language-Based

- Are students reading and writing for various purposes?
- Are students reading and writing in EVERY class, EVERY day?
- Are students generating text, that is, not parroting someone else's answers, but their own when talking and writing?

Learning is Social

- Whose voices are heard in the classroom?
- Are students provided the opportunity to share their reactions, ideas, beliefs, opinions?
- Do they work with peers to share and refine their thinking?

Learning is Human

- Does each student have an opportunity to respond in a way that is unique to him/her (ie, talk, write, design a project, complete an assignment)?
- Does the teacher adjust instruction before, during, and after where appropriate and when assessments call for it?

Use the Model of Effective Engagement to plan lessons from the UbD Unit Plans.

Models for Student Learning

A Summary of Recent Research

What model most improves both short and long term student learning?

See it ——— Say it ——— Write it

What model most effectively deepens both understanding and retention?

See it ——— Say it ——— Write it ——— Apply it

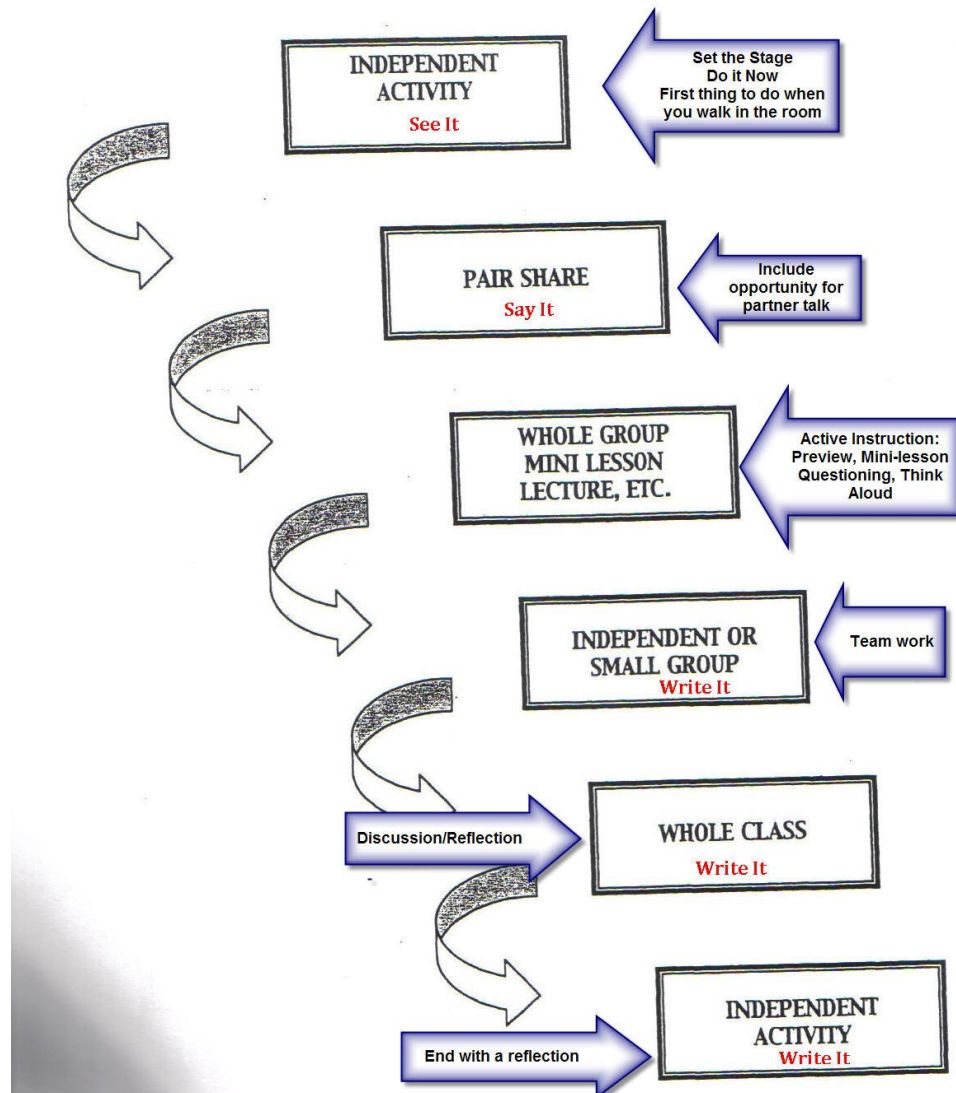
What one student-reported factor most effects student performance?

Motivation

What one teacher-reported factor most effects student performance?

Motivation

AN EFFECTIVE MODEL OF ENGAGEMENT



What a blocked lesson looks like:

Clear Learning Goal, aligned with standards Essential Question(s)							
Framework	Independent Activity	Share Out		Whole Group Mini-Lesson	Small Group/ Individual	Whole Class Activity	Independent Activity
Timing	10 min	5 min		20 min (or less)	20 min (or more)	5 min	10 min
Structure	<ul style="list-style-type: none"> Individual Pairs Small Groups 	<ul style="list-style-type: none"> Individual/small group to whole class Interaction between student & teacher 	TRANSITION	<ul style="list-style-type: none"> Whole Groups Small Groups 	Flexible small groups <ul style="list-style-type: none"> Homogeneous Heterogeneous Special Ed - Inclusion teachers instruct using eligible content	Whole Group	Individual
Purpose	<ul style="list-style-type: none"> Activate prior knowledge Motivate for learning Build background knowledge 	<ul style="list-style-type: none"> Address the "big"/essential question Engagement Draw on background knowledge 		<ul style="list-style-type: none"> Deliver the content Explicit instruction that ties to the learning goal(s) 	<ul style="list-style-type: none"> Differentiated instruction Target students' instructional levels 	<ul style="list-style-type: none"> <i>Check for understanding</i> Summarize/clarify/feedback 	<ul style="list-style-type: none"> <i>Check for understanding</i> Meta-cognitive activities <i>Formative assessments</i>
Instructional Strategies/ Activities	<ul style="list-style-type: none"> Any "Before" activities Big Question Type I & II prompts Do Now 	<ul style="list-style-type: none"> Random Reporter On the spot 		<ul style="list-style-type: none"> Any "During" strategies <i>Questioning</i> Modeling Teaching a Strategy Any "After" strategies 	<ul style="list-style-type: none"> Any "During" or "After" strategies <i>Team Talk</i> Partner Reading Jigsaw activity Meta-cognitive strategies 	<ul style="list-style-type: none"> <i>Question and answer</i> Summary Random Reporter <i>Bump in the Road</i> 	<ul style="list-style-type: none"> Any "After" strategies 3-2-1 <i>Ticket out the door/Exit Card</i> 25 word summary

What a period lesson looks like:

Clear Learning Goal, aligned with standards Essential Question(s)							
Framework	Independent Activity (POD)	Share Out		Whole Group Mini-Lesson	Small Group/ Individual	Whole Class Activity	Independent Activity (Exit)
~Timing	3-5 min	3 min		10 min (or less)	10 min (or more)	5 min	5-7 min
Structure	<ul style="list-style-type: none"> Individual Pairs Small Groups 	<ul style="list-style-type: none"> Individual/small group to whole class Interaction between student & teacher 	T R A N S I T I O N	<ul style="list-style-type: none"> Whole Groups Small Groups 	Flexible small groups <ul style="list-style-type: none"> Homogeneous Heterogeneous Special Ed - Inclusion teachers instruct using eligible content	Whole Group	Individual
Purpose	<ul style="list-style-type: none"> Activate prior knowledge Motivate for learning Build background knowledge 	<ul style="list-style-type: none"> Address the "big"/essential question Engagement Draw on background knowledge 		<ul style="list-style-type: none"> Deliver the content Explicit instruction that ties to the learning goal(s) 	<ul style="list-style-type: none"> Differentiated instruction Target students' instructional levels 	<ul style="list-style-type: none"> <i>Check for understanding</i> Summarize/clarify/feedback 	<ul style="list-style-type: none"> <i>Check for understanding</i> Meta-cognitive activities <i>Formative assessments</i>
Instructional Strategies/ Activities	<ul style="list-style-type: none"> Any "Before" activities Big Question Collins Type I & II prompts Do Now 	<ul style="list-style-type: none"> Random Reporter On the spot 		<ul style="list-style-type: none"> Any "During" strategies <i>Questioning</i> <i>Modeling</i> <i>Teaching a Strategy</i> Any "After" strategies 	<ul style="list-style-type: none"> Any "During" or "After" strategies <i>Team Talk</i> <i>Partner Reading</i> <i>Jigsaw activity</i> Meta-cognitive strategies Collins Types III & IV 	<ul style="list-style-type: none"> <i>Question and answer</i> <i>Summary</i> <i>Random Reporter</i> <i>Bump in the Road</i> 	<ul style="list-style-type: none"> Any "After" strategies <i>3-2-1</i> <i>Ticket out the door/Exit Card</i> <i>25 word summary</i> Collins Type I & II

Lesson Planning Template

Unit Plan:	Understanding:	Essential Questions:	Objectives:	Performance Task:	
	Monday	Tuesday	Wednesday	Thursday	Friday
Independent Activity: Problem of the Day (POD)					
Share Out					
Mini Lesson					
Individual or Small Group Activity					
Whole Group Summarization of Learning					
Independent Activity: Exit					
Special Education accommodations					
ELL Accommodations					
Technology Integration					

12 Power Words!

The 12 Power Words are verbs that students see on every standardized test. Learn these words to better understand what you're being asked to do on a test. Include these words in instruction as often as you can.

Analyze	Break it down into parts. Tell about each of the parts
Infer	Read between the lines. What is the hidden meaning?
Evaluate	Tell the good and the bad. Judge it.
Describe	Tell me about it. Give details about it. Paint a picture with words.
Support	Back up the information. Prove. Provide evidence.
Explain	Teach me or show me. Tell the steps.
Summarize	Tell the main idea. Tell the beginning, middle, and end.
Compare	Tell all the ways they are the same.
Contrast	Tell all the ways they are different.
Predict	Hypothesize. Make an educated (smart) guess.
Formulate	Create. Put together.
Trace	Outline. Explain the development. Follow (or explain) the path.

Larry Bell's 12 Power Words (with minor adaptations)

<http://w4.nkcsd.k12.mo.us/~stc/pdfs/Map%20power%20words.pdf>

How to Use the 12 Power Words in Instruction

1. Post the words around the classroom
2. Play a matching game to determine which words students need to learn.
3. Use the words in all quizzes or test stem questions.
4. Incorporate the words into teacher talk.
5. Create puzzle games with the words
6. Have students make stem questions using the words and content.
7. Create a mnemonic.
8. Develop a daily "Do Now" activity, i.e. Today's power word is **explain**, which means to tell how you arrived at something by teaching me, showing me, or telling me the steps. In your journal, explain how...
9. At the end of class, use the Outcome Sentence strategy and incorporate the day's power word into the sentence starter. i.e. *Explain* one thing you learned today. *Explain* what surprised you most today. *Explain* how you realized something new today. *Explain* why you do not understand something that was taught today. *Explain* why you are still curious about something you learned today.

Strategy Showcase

Today's featured strategy is **Outcome Sentences**, which is variation of exit slips and allows you to complete your lesson with some writing. Here's how it works - at the end of a lesson, give students a sentence prompt(s) to review what they have learned. For example:

- 1) I learned ...
- 2) I was surprised ...
- 3) I now realize ...
- 4) I do not understand ...
- 5) I would like to find out more about ...

You can collect these as you would exit slips, or have students put them in a journal and periodically review them to assess how well your lessons are going, and/or begin the next day's lesson based on the information you have learned from your students' written responses.

Teaching Strategies A to Z

This is a list of teaching strategies that are research-based and correlate to the instructional framework.

A

Anticipation Guide
Assigned Questions
Author's Chair

B

Balanced Literacy
Book Talks
Brainstorming

C

Case Studies
Categorizing
Classroom Conversations
Cloze Procedure
Clustering
Compare & Contrast
Computer Assisted Instruction
Concept Attainment
Concept Formation
Concept Maps
Conducting Experiments
Cooperative Learning
Creative Problem Solving

D

Debates
Decision-making Process
Demonstrations
Didactic Questions
Discussion
Drill & Practice

E

Essays
Experience Charts
Explicit Teaching
Expository, Narrative & Persuasive Writing

F

Field Observations
Field Trips
Focused Imaging

G

Games
Graphic Organizers
Guided & Assisted Reading
Guided & Assisted Retellings
Guided Reading & Thinking

H

Heterogeneous Grouping
Homogeneous Grouping

I

Independent Research
Inquiry
Instructional Groups
Interdisciplinary Approach
Interviewing

J

Jigsaw
Journal Writing

K

K-W-L

L

Laboratory Groups
Learning Activity Packages
Learning Centers
Learning Contracts
Learning Logs

Lecture
Listen & Visualize
Literacy Centred Instruction
Literature Based Instruction
Literature Circles

M

Mind Mapping
Mini Lessons
Miscue Analysis
Model Building
Modes of Reading
Multiple Intelligence

N

Narrated Reading
Narratives
Needs-based Grouping
Novel Studies

O

Oratory, Public Speaking and Speech Writing

P

Panels
Peer Partner Learning
Picture Books and Illustrator Studies
Picture Word Inductive Model (PWIM)
Probable Passage
Problem Solving

Q

QARs
Questioning Levels
Questioning Techniques

R

RAFT
Read Aloud
Reading for Meaning
Read & Paraphrase
Read & Respond

Read, Pause & Reflect
Readers' Theater
Reciprocal Reading
Reflective Discussion
Reports
Research Projects
Response Journal
Role Playing
Running Record

S

Scaffolding
Science Fairs
Science Olympics
Self Monitoring Strategies
Simulations
SQ3R
Sociograms in Literature
Story Mapping
Storytelling
Structured Controversy
Structured Overview
Study Groups
Surveys

T

Talking Circles
Team Teaching/Modeling of Instruction
Think Alouds
Think, Pair, Share
Thinking Strategies
Tutorial Groups

U

V

Visual Imaging

W

Webbing
WebQuests
Word Walls
Working with Words

Writing to Inform	X
Write Aloud	
Writer's Workshop	Y
Writing Conferences	
Writing Process	Z

Writing Strategies

All teachers are writing teachers. Writing across the curriculum is also an important component clearly identified in PA Common Core standards. As with literacy, writing is an expected component in all content areas. Align writing using the literacy alignments from Academic and Common Core Standards.

Here are a few research-based best practice writing strategies that you can include:

- a. Collins Writing http://www.collinsed.com/five_types_of_writing.htm
- b. RAFT http://www.writingfix.com/wac/Writing_Across_Curriculum_RAFTS_Science.htm
- c. Cornell Note taking <http://www.sophia.org/cornell-notetaking-system-tutorial>
 - i. Note maker <http://www.cornell-notes.com/>
- d. Interactive Notebook <http://www-pvhs.stjohns.k12.fl.us/teachers/middaug/keepinginteractivenotebooksinscience.pdf>

Collins Writing

Collins Writing: The Five Types of Writing

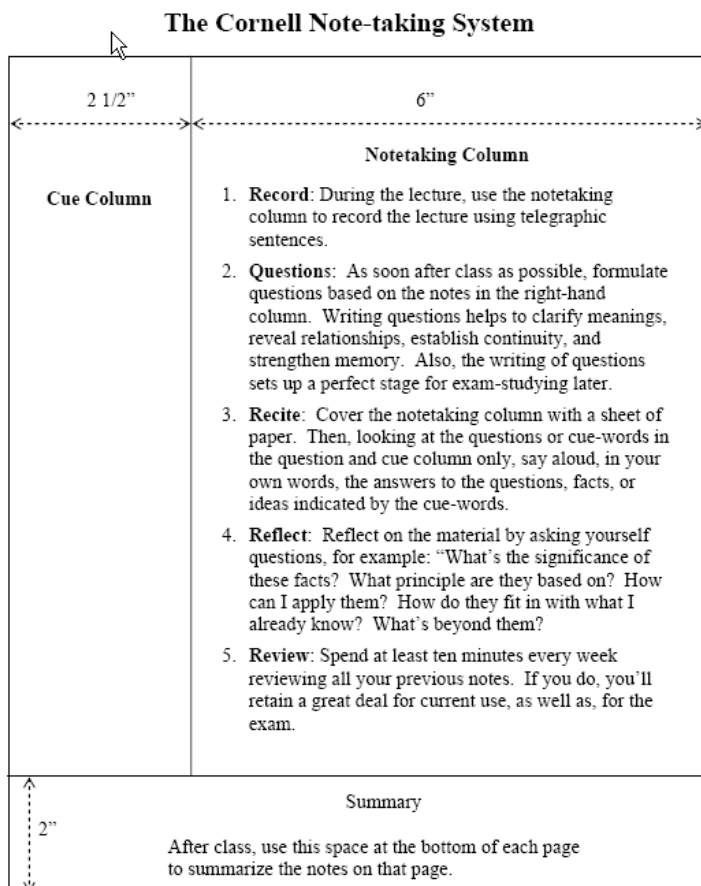
Type	Description	# of Drafts & Evaluation
Type 1: Capture Ideas	Type 1 writing gets ideas on paper -- it's brainstorming. Type 1 is timed and requires a minimum number of items or lines to be generated. Questions and/or guesses are permitted.	<ul style="list-style-type: none"> One draft Outcomes are evaluated with a check (✓) or a minus (-)
Type 2: Respond Correctly	Type 2 writing shows that the writer knows something about a topic or has thought about the topic. It is a correct answer to a specific question.	<ul style="list-style-type: none"> One draft Graded as a quiz
Type 3: Edit for Focus Correction Areas	Type 3 writing has substantive content and meets up to three specific standards called "focus correction areas" (FCA). Revision and editing are done on the original.	<ul style="list-style-type: none"> one draft (save) Read out loud and reviewed to see if the draft completes the assignment, is easy to read and meets standards set for the focus correction areas.
Type 4: Peer Edit for Focus Correction Areas	Type 4 writing is Type 3 writing that is read aloud by someone else.	<ul style="list-style-type: none"> Two drafts (save) Writing is critiqued by a peer and revised by the author
Type 5: Publish	Type 5 writing is of publishable quality.	<ul style="list-style-type: none"> Multiple drafts (save) Published work

Writing Across the Curriculum with RAFTs

Its sole purpose is to make writing feel more authentic in two ways: 1) students are asked to think and write from a real world person's perspective, and they are asked to shape their ideas to appeal to an audience outside the classroom; 2) because they are considering perspective as they go through the writing process, students are being asked to think at a much deeper level of Bloom's Taxonomy. It's no wonder R.A.F.T. writing assignment have become very popular in the last decade, especially with content area teachers who are looking for ways to use more writing across the curriculum in their classrooms.

What is a RAFT Writing Assignment? R.A.F.T. writing prompts challenge students to assume a Role before writing, to write for an imaginary Audience, to write using a given Format, to write about a certain Topic. This is a simple but powerful technique that will inspire more thoughtful writing from yourself or your students.

Cornell Note-taking System



Adapted from How to Study in College 7/e by Walter Pauk, 2001 Houghton Mifflin Company

Interactive Student Notebook Guidelines

What is the purpose of this notebook?

The purpose of the interactive notebook (IAN) is to enable you to be a creative, independent thinker and writer. Interactive notebooks will be used for class notes as well as for other activities where you will be asked to express your own ideas and process the information presented in class.

What type of notebook should I have?

I have found that a marble type composition book works well and lasts the longest, although it is small in size. You can find them cheaply too. A spiral will work, but may fall about with prolonged use. A binder with loose-leaf will work too.

How should my notebook be organized?

Your notebook will be organized into chronological pages. The beginning of your notebook will consist of a Table of Contents that should be updated on a daily basis.

Will my notebook be graded?

Notebooks will be graded periodically for Completeness and Visual Appearance, at least once a quarter. All class notes and notebook assignments should be updated, even for the days you were absent. Each entry should be titled and dated. Your artistic touch should be visible throughout the notebook. Creativity and originality are strongly encouraged. Adding illustrations, decorative borders or other creative input to illuminate written assignments is always welcome (so long as it does not obstruct the reading of the text).

How will my notebook get to you?

You will be asked to scan certain pages and attach them in an email to me.

Some additional information

Read the “Setting Up My Notebook” page. **Print this paper and paste it onto the inside front cover of your notebook.**

I will try to keep a “Teacher Notebook” as well. This will allow me to scan and upload images of what your pages should look like.

In the daily lesson, you will start to see something like “copy this down in your IAN 25”. That means I want you to copy something, or complete an activity on the interactive notebook (IAN) page numbered 25. I will usually give you a title for that page too. When you have finished the activity for that page, don’t forget to update the page in the Table of Content area also.

You might also be asked to complete a worksheet that you have downloaded and printed from the web. If you have written information on the IAN page, the handout will be pasted in a “flap” style. What I mean, is fold the paper in ½ from top to bottom. Run a strip of glue onto an edge and paste the paper in the IAN, where it can be lifted up. I will upload a picture of what this looks like.

Why am I doing this again?

This method will give you a record of what you have learned, making a personal “textbook.” It will help you stay organized. It will be a record of the work you have completed. You can use the IAN to help you study for quizzes or tests. Since we don’t “see” each other, the IAN keeps us all on the same page.

Setting Up Your Notebook

Inside Front Cover:

Please glue in to place your Notebook Guidelines.

Pages One – Seventy (see how far your pages go): Number all pages (front and back) in the upper outside corner.

Page One: Title Page

This information may appear anywhere on the first page. This notebook is yours; this is your opportunity to make it look unique. Stifle the urge to be silly, but let loose your creativity. The page must include:

- Your name
- Mrs. Faulkner-Beitzel (spell it correctly!) ☺
- Class Name (i.e. Sociology or Psychology)
- 2006 - 07
- Color illustrations, collages, cartoons...It's up to you.
- Paste Making A Document for My IAN

Pages Two – Four: Table of Contents

On the top line (not in the air!) of page three, you are to write *Table of Contents*. Skip a line, and on the next line write, in order: Date, Title, and Page. We will head each new page of the Table of Contents (TOC) as it becomes necessary.

Table of Contents		
Date	Title	Page

Page Five: Title Page for Unit 1 and Chapter 1

The title page is portrayed as an illustration of what you will be learning in the chapter. So look over Chapter 1. What is it all about? Draw pictures, make statements, glue Internet graphics as a collage. Be creative. You must include the Chapter title somewhere on this page!

Okay. Now we are ready to begin using our notebooks!

Performance Tasks

According to UbD, “understanding is revealed in performance” (Wiggins & McTighe, 2005, p. 153) and the designed task should solve a real-world problem. The easiest way to create these tasks is to use the G.R.A.S.P.S. model

G

Real -world Goal

R

Real-world Role

A

Real-world Audience

S

Real-world Situation

P

Real-world Products or Performances

S

Standards

GOAL

Provide a statement of the task.

Establish the goal, problem, challenge, or obstacle in the task.

ROLE

Define the role of the students in the task.

State the job of the students for the task.

AUDIENCE

Identify the target audience within the context of the scenario.

Example audiences might include a client or committee.

SITUATION

Set the context of the scenario.

Explain the situation.

PRODUCT

Clarify what the students will create and why they will create it.

STANDARDS and CRITERIA [INDICATORS]

Provide students with a clear picture of success.

Identify specific standards for success.

Issue rubrics to the students or develop them with the students

Example

G- (goal) To educate the local citizens about planning and maintaining a sustainable organic vegetable garden

R- (role) Ecologist/ gardener who represents an environmental organization

A- (audience) local inhabitants

S- (situation) The government is populating a former superfund site. It has invited the environmental organization to educate the people about organic methods of farming to avoid a repeat of the earlier debacle of environmental pollutants through overuse of fertilizers and pesticides.

P- (purpose and product) Educate the people about the importance of all organisms in the local environment and how they can be used to improve fertility of the soil and control pests by creating a plan and planting guide for an organic vegetable/flower garden.

S- (standards for performance) See rubric

- Research report/ presentation
- Planting guide/plan for the organic garden that includes;
- What plants will you plant in the garden as source for food
- How will you plant to minimize nutrient depletion of the soil?
- How, when and where in the garden will you plant to maximize production
- How will you control loss due to pests
- What organisms will you cultivate to maintain the health of your organic garden?

Technology Fluency

Best Practices for Integration

Esperanza Academy Charter School

Contents

No table of contents entries found.

Technology Integration at Esperanza Academy: Mind Your P and C's

Introduction

Essential Question: How should I think about technology and connect it to curriculum?

Technology changes, expands, and morphs every day. It can be a challenge to decide how to integrate technology and what devices to use. Attributes of an engaged classroom now include technology. That's our new reality as teachers. Instead of shooting for the stars and including technology all the time, let's take it one step at a time and choose the tool that fits what is being taught and the skills we are expecting students to master.

Before we move forward, let's review a quick snapshot of the pioneering work of educators before us and use that knowledge to empower yourself and your students to change the paradigm of what it means to be a teacher and a student in the 21st century.

Marc Prensky, author of *Teaching Digital Natives: Partnering for Real Learning*.

- one of the first to point out that we can learn anything from the devices in our pockets.

Will Richardson, Learner in Chief at Connective Learning; author of *Blogs, Wikis, Podcasts and other Powerful web Tools for Classrooms*.

- children are damaged when they are not empowered in school to use the tools they use in the real world.

Robert Marzano, CEO Marzano Research Laboratory; author of *Classroom Instruction that Works, The Art and Science of Teaching*.

- research proven teaching and learning strategies to know and understand what works in classrooms.

Introducing the iGeneration



<http://www.edutopia.org/synching-ikid>

So, who are we talking about? When you picture a typical student walking into school today what do you see? You probably see a child with earbuds plugged into a mobile device with cell phone in hand. This child has been called the Net Generation, GenY, GenZ, Gen Nexters, Millenials, or the iGeneration.

These students, born in the 1990s to 2000, have not known a world without technology, a life without the Internet or mobile devices. They see the Internet not as a place to gather information, but a place to gather together. Their tech tools are for participating, communicating, collaborating, and organizing.



How do we, as teachers, tap into their knowledge and interest?

Examining Statistics

These students like to move rapidly from website to website and use texting shorthand when they write. They are intimidated by long, text heavy reading, as video and images are more their style. Building relationships online is second nature and sharing information is paramount to their identities. Technology is meaningful in that it is the tool that makes everything happen. Portable, instant, and interactive are what these students crave in a learning environment. And when faced with a traditional learning setting they wait all day for the exit bell so they can plug back in.

Even though ___% of teachers believe that technology improves student learning, only ___% report using technology to monitor student progress and ___% report using technology in daily instruction.

When asked students don't want to be lectured to. Instead they want to be respected, have their opinions valued, be able to follow passions and interests by creating using the tools of today. They also want to work and connect with their peers, make decisions and take control, and cooperate not just compete with each other. In other words, they want their school to give them an education that is real and relevant.

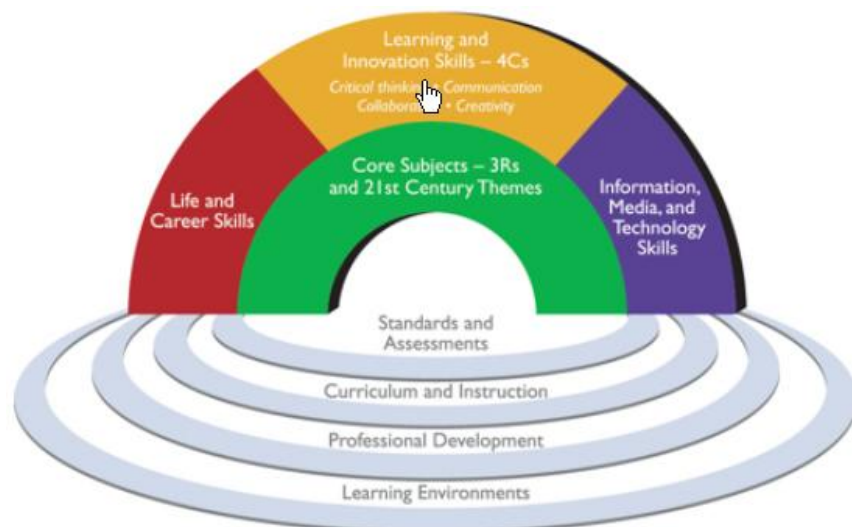
How Do We Deal With This?

You may be feeling pressure to do something different for the students sitting in your classroom today and wondering why the teaching techniques you have used in the past are not working. You are probably attempting to make changes. You may also be wondering how to keep what is important from your past understandings about teaching while embracing the tools of today. To help with this distinction, think of the skills students should know as a "verb" (understanding, communicating) and the tool, what is used to learn, as the "noun" (wikis, blogs, Animoto) of teaching. The verb is fundamental to knowledge construction and the nouns evolve and change over time.

I imagine that you may feel frightened at the prospect of change, or that you fully charge ahead with new things. Either is a feeling that involves great courage. Change takes courage: courage to start, courage to sustain, and courage when things don't go according to plan. That's why this scope has been created – to help you on the road to change.

The Road to Technology Integration

How do you create experiences for students that include whatever, or perhaps none, types of technologies available in the school or your classroom? How do you remember that technology is not THE lesson but a tool that supports the lesson? Remember the verbs and nouns!



Four verbs that focus our technology implementation plan were identified by the Partnership for 21st Century Skills. They are called the Four C's and include collaborating, communicating, creating, and critical thinking (or those skills on the high side of Bloom's taxonomy).

<http://www.p21.org>



What do those verbs look like in a classroom and what skills might they be attached to?

In the 21st century world, global citizenship entails more than the traditional fluencies taught in the past (reading, writing, etc.). Students must also be fluent today in problem-solving using all their fluencies. The 21st Century Fluency Project therefore, adds more verbs to the mix (analyzing, identifying, interpreting):



<http://fluency21.com/fluencies.html>

- information gathering and analysis (Information Fluency),
- in finding creative solutions to problems (Solution Fluency),
- being able to interpret multimedia messages (Media Fluency),
- work on real and virtual teams as both leaders and members (Collaboration Fluency),

- and be able to find and use innovative designs that add value to the task at hand (Creativity Fluency).

The last important perspectives to review as we shape a plan are the ISTE NETs for Students and the Pennsylvania Computer and Information Technologies academic standards. The national educational technology standards were developed in 2007 to foster classroom development teaching and learning that aligned to the National Educational Technology Plan put forth by the Department of Education. ISTE NETS for Students employ the verbs of 4Cs and problem solving from p21.org, the fluency verbs from fluency21.com, and add verbs around digital citizenship and technology operations and concepts to the mix (advocating, practicing, exhibiting, supporting, demonstrating, troubleshooting). The PA standards, include academic benchmarks for computer sciences and creating products. Our plan will focus on the benchmarks on using emerging technologies in the classroom.

To name our own Technology Framework, let's use *Mind your P and C's* to indicate the opportunities designed for effective, engaging teaching and learning that include the fluencies of Problem Solving, the 4C's, and national and state educational standards.

The verbs are the skills that students need to learn, practice and master and now include (not an all encompassing list!): brainstorm, create, elaborate, refine, analyze, evaluate, develop, implement, communicate, respond, incorporate, demonstrate, invent, adopt, reason, produce, connect, collaborate, interpret, conclude, reflect, solve, identify, clarify, present, lead, articulate, listen, inform, instruct, persuade, compromise, share responsibility, manage, access, construct, examine, apply, organize, network, and integrate.

These verbs, regardless of subject taught, include all those traditional things that teachers want students to be able to do. Verbs important to learning don't change much over time.



What other verbs will you find as you begin to integrate technologies?

On the other hand, nouns change constantly and sometime so quickly that just when we feel confident using one our students are bored with it already! Nouns are both traditional and innovative and include technology hardware and software. A simple example is to say that PowerPoint is the noun to which we expect students to master the verb of presenting. The nouns of today might include presentation tools such as Google Hangout, Prezi, or Animoto. If you ask a student how he or she communicates, the answer you will not get is "by email." Instead you'll see such nouns as Twitter, Facebook, or texting (and perhaps even those are outdated!).

The following eight nouns have been identified as effective strategies that align with 21st century skills or fluencies. Make attempts to integrate them into instruction where they become the architecture of the learning environment. The actual software or applications can of course be updated to anything that is fresh and new.

The Nouns: Digital Tools to Use Aligned with 21st Century Fluencies

1. Social Networking: Edmodo.com, Schoology.com
2. Videoconferencing (Vo IP): Google Hangout, Skype
3. Writing: Blog with blogger.com, manage files with Google Docs
4. Social Bookmarking: Diigo.com
5. Collaborative Editing: Google Docs or Buzzword from Adobe (free)
6. Microblogging: Twitter.com
7. Communicating: Google Chat, podcasts, blogs
8. Media sharing: Flickr.com, YouTube



What have you used in the past that you could add to the list of nouns? More importantly, what are your students using today that you could incorporate into the classroom?

To avoid using technology for its own sake instead of to foster student learning and build skills, focus instruction on the verbs and supplement skill-building with the nouns.

A quick word about audience: When students created in the past they did so to an audience of one, the teacher. Today that audience is and should be significantly larger; it is global, world-wide. The world is also quite happy to provide feedback too. Think about being able to publish all student work online (follow school policy for cyber safety, but don't let that be a barrier). Bring in professional experts to collaborate with students in a real-world problem, mentoring them along the way. When reading a book, find out if the author is willing to hold a chat or videoconference with students. Treat students as budding professionals and their outputs will significantly be improved.

Spiraling Expectations

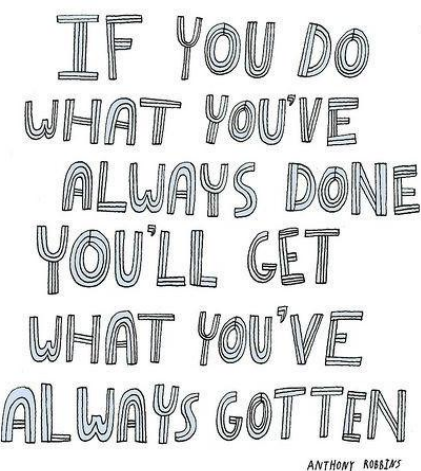
It is not a productive task to say that a 6th grader should know and be able to do XYZ verb/noun combination. Recognizing that technology is ubiquitous in the lives of our students and that technology skills are learned at a young age, it is better to focus our instructional planning time around what we have identified as the most effective skills to have relating to *Mind Your P and C's*. To help you develop those types of learning experiences a more comprehensive list of verbs with associated nouns, excerpted from *Teaching Digital Natives* by Marc Prensky, is provided at the end of the document. On the other hand, teachers are in need of guidance as to what students should be able to know and do related to technologies. To help guide implementation of effective technology practices two schemas are presented: (1) for grade level expectations with product and process framed by the PA standards and (2) a measurement tool of the overarching categories to which our students aspire proficiency, framed by national expectations of 21st century skills. Both guides are provided at the end of this document.

However, what we can say is that the expected technology skills progression of Esperanza students from grades six to twelve would include a spiraling framework of skills and knowledge that would lead to a student being able to internalize and show through research and managing information, thinking effectively, communicating and presenting what was

constructed and created does and will involve a multi-modal approach in both devices and tools.

And remember, it is the job of the student to use whatever technology is available, not the teacher's. The teacher is the guide, the coach, the troubleshooter, not the user.

Eliminating Barriers






It is a recognized barrier that not all classrooms have the same high access to the technologies needed to foster use of effective nouns. There is a saying that to “do the same thing over and over again expecting a different result is insanity.” Don’t foster insanity or go insane yourself! Rather than expecting disappointment and frustration, plan the learning with activities involving high tech, low tech, and no tech environments. This will prepare you and your students with Plan B and C in case Plan A doesn’t work.

High tech = technology devices and Internet available and connected, video and audio creation utilized

Low tech = some technology devices and Internet available plan for small groups at computer stations and the rest using offline applications

No tech = no technology devices or Internet available, plan pen/paper activities

This could look like:

Students will create a playground design for the new proposed playground		
 High Tech	 Low Tech	 No Tech
Students will create an online survey using SurveyMonkey.com and share the link to peers, using email, Twitter, and class webpage. Students will conduct audio interviews with playground design experts and then use Geogebra to design the playground dimensions.	Students will create a survey of what their peers want in a playground using Google Forms. Students will be informed about the survey on a morning announcement and will complete surveys as they can using the computers in the library. Students will design the playground dimensions using Microsoft Word tools.	Students will create a survey questionnaire and conduct it during lunch periods using a random approach to students to ask the questions and record the answers on the questionnaire form. Students will design the playground dimensions using pen, paper, ruler, and protractor.

Still not connected? Technology not working? Turn the activity around into a discussion. Ask students “if we had the technology what would we have done? How would it be used? What would we find? How would that help us complete the task? What terms or strategies would we use?” These types of questions actually get to the heart of why are we using technology? What do we hope to learn? Try not to be stymied by a lack of technology, sometimes pretending is a great exercise in and of itself.

Teacher’s Roles in Technology Integration

Give students the abilities to use whatever technologies are available. Know about the technologies but do not feel you have to be the expert in the room. Use students’ expertise to help mentor other students. Watch and help students produce high-quality, rigorous work. Encourage students to use multiple technologies and to stretch their knowledge, understanding, and skills too.

Educational technology tools of the past changed slowly so teachers were able to master them over time, i.e. scroll to book, chalk to marker, mimeograph to copier, etc. Today however, slow is not the pace in which technologies change. Think warp speed. Learning tools emerge, change, and disappear at a pace that is mind-boggling. Understanding what’s around now and what could be found in the future is paramount to effective integration.

When the World Wide Web appeared in the 1990s it was used for finding, reading, and sometimes watching. It was not for creating. The inventor of the web, Tim Berners-Lee is famous for saying that the web was created for people to put things in not take things out. How times have changed! Creating using web-based applications happened with the digital evolution of Web 2.0 tools sometime around the mid-2000s, called the Read-Write-Create Web. Now it is quite easy to publish words, images, or video on blogs, wikis or YouTube. With the invention of smartphones, the web and all its power could be found in our pockets anywhere we happened to be. Being developed now is Web 3.0, the “semantic web” where we will be able to search any work ever created for anything and link all those pieces together in one place. [Explore further with this interactive timeline.](#)

Other technology integrations to be aware of are BYOD Bring Your Own Device, 1:1 where each student has a device, and cell phone use in the classroom.

As a teacher in the 21st century it would be beneficial to understand your own personal understandings; what you are afraid of, what you know, what you would like to learn.

Technology Integration and Our Mission

Finally, let’s end our conversation about technology integration by discussing how we foster student success after our students leave Esperanza and navigate through more complex life, school, and work environments. We need to ensure and promise our students that we are helping them develop the following abilities:

- Adapt to Change
- Be Flexible
- Manage Goals and Time
- Work Independently
- Be Self-Directed Learners
- Interact Effectively with Others
- Work Effectively in Diverse Teams
- Manage Projects
- Produce Results
- Guide and Lead Others
- Be Responsible to Others

To learn more about how these important skills can be integrated with curriculum learning experiences, review the *Life, Academic, and Career Skills of an Esperanza Student*.

The Verbs and Associated Nouns

NOT an encompassing list, but a guide. Use your imagination. Be creative and innovate! Also think of the nouns as high, low, or no tech. A debriefing conversation is just, or perhaps even more valuable, than a blog entry.

Verbs for Researching and Managing Information		
Verb	Noun	Example Tool
Analyzing	Spreadsheets, data analytics, spelling and grammar checkers, statistics, critiques	
Exploring	Search engines, hyperlinks	
Reading	Internet, online readers, speech-to-text programs, cell phone or graphic novels	
Searching and Finding	Search engines, reading tools, mapping tools, RSS, listserves	
Verifying	Research tools, fact checkers	
Watching and Listening	Podcasts, video, video search engines, text-to speech tools	Audioboo, YouTube, Vimeo, DragonSpeak

Verbs for Thinking Effectively		
Verb	Noun	Example Tool
Calculating	Calculators, cell phones, spreadsheets	
Comparing	Comparison tools	
Deciding	Decision-making tools, games, questions generators, comparison generators	
Ethical Questioning	Scenarios and simulations, case studies, video	
Evaluating	Logic tools, comparative internet tools,	

	rubrics, assessment and self-assessment	
Experimenting	Data collection tools, camera, probes, virtual labs, simulations	
Modeling, using Models	3D printers, simulations, spreadsheets	
Observing	Cameras, video, games	
Predicting	Simulations, forecasting tools, scenarios	
Problem solving	Decision trees, scientific method, data analysis	
Reflecting	Writing, journaling, exit slips, peer assessment,	Wikis, blogs, Voicethread, Wall wisher

Verbs for Communicating and Presenting		
Verb	Noun	Example Tool
Briefing	Multimedia, video, podcasts	PowerPoint, Animoto, Prezi, Audioboo, YouTube
Collaborating	Collaborating/videoconferencing tools	Google Docs, Google Chat, Google Hangout
Combining	Mashups, editing, multimedia creation	
Connecting	Social networks	Edmodo, Facebook
Cooperating	Collaboration tools	Blogs, wikis, games,
Debating	Research, negotiation tools	
Dialoging	Communication tools	Email, text, blog, cell phones
Listening	Audio video tools	Google chat, Google hangout, Skype
Writing	Outlining tools, script writing tools, storyboarding, dictionaries, thesaurus	

Verbs for Constructing and Creating		
Verb	Noun	Example Tool
Competing	Games, contests, competitions	
Designing	Brainstorm and designing tools	
Making	Writing tools, programming, graphics, game-making, CAD	

ISTE NETs for Students

1. Creativity and Innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students:

- a. apply existing knowledge to generate new ideas, products, or processes.
- b. create original works as a means of personal or group expression.
- c. use models and simulations to explore complex systems and issues.
- d. identify trends and forecast possibilities.

2. Communication and Collaboration

Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. Students:

- a. interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
- b. communicate information and ideas effectively to multiple audiences using a variety of media and formats.
- c. develop cultural understanding and global awareness by engaging with learners of other cultures.
- d. contribute to project teams to produce original works or solve problems.

3. Research and Information Fluency

Students apply digital tools to gather, evaluate, and use information. Students:

- a. plan strategies to guide inquiry.
- b. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
- c. evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
- d. process data and report results.

4. Critical Thinking, Problem Solving, and Decision Making

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students:

- a. identify and define authentic problems and significant questions for investigation.
- b. plan and manage activities to develop a solution or complete a project.
- c. collect and analyze data to identify solutions and/or make informed decisions.

- d. use multiple processes and diverse perspectives to explore alternative solutions.

5. Digital Citizenship

Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. Students:

- a. advocate and practice safe, legal, and responsible use of information and technology.
- b. exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.
- c. demonstrate personal responsibility for lifelong learning.
- d. exhibit leadership for digital citizenship.

6. Technology Operations and Concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations. Students:

- a. understand and use technology systems.
- b. select and use applications effectively and productively.
- c. troubleshoot systems and applications.
- d. transfer current knowledge to learning of new technologies.

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Pennsylvania Academic Standard

15.4: Computer and Information Technologies

	GRADES 6 – 8	GRADES 9 – 12
Emerging Technologies	15.4.8.A: Analyze the influence of emerging technologies on daily life.	15.4.12.A: Apply the creative and productive use of emerging technologies for educational and personal success.
Digital Citizenship	15.4.8.B: Interpret and apply appropriate social, legal, ethical, and safe behaviors of digital citizenship.	15.4.12.B: Evaluate the impact of social, legal, ethical, and safe behaviors on digital citizenship.
Creativity	15.4.8.D: Create projects using emerging input technologies.	n/a
	15.4.8.G: Create an advanced digital project using appropriate software/application for an authentic task.	15.4.12.G: Create an advanced digital project using sophisticated design and appropriate software/applications.
	15.4.8.K: Create a multimedia project using student-created digital media.	15.4.12.K: Evaluate advanced multimedia work products and make recommendations based on the evaluation.
Citing Sources	15.4.8.L: Evaluate the accuracy and bias of online sources of information; appropriately cite online resources.	15.4.12.L: Find and use primary documentation; employ an accepted protocol for citation

Grades 6-12 Technology Skills and Knowledge Cluster Matrix

	Grade 6	Grade 7	Grade 8	Grades 9-10	Grades 11-12
21st Century Skills & Fluencies	Novice	Novice to Emerging	Emerging	Emerging to Proficient	Proficient to Advanced
15.4.A Emerging Technologies	use Google Docs as a file creation and management tool	create and manage files in Google Docs learn how to create storyboards, websites, wikis, blogs, and podcasts	Use storyboards websites, blogs, and podcasts to show learning	Utilize advanced features of word processing software, including outlining, tracking changes, hyperlinking, and mail merging. Utilize advanced features of spreadsheet software, including creating charts and graphs, sorting and filtering data, creating formulas, and applying functions.	
15.4.B Digital Citizenship	<p>Netiquette, copyright, privacy and safety</p> <p>Follow local acceptable use policies regarding technology. Netiquette, copyright, privacy and safety</p> <p>Follow local acceptable use policies regarding technology. Netiquette, copyright, privacy and safety</p> <p>Follow local acceptable use policies regarding technology.</p>			<p>Describe the importance of security for personal information and systems, identity theft, malware, etc.</p> <p>Practice responsible, ethical, and legal use of technology systems, the Internet, communication tools, and applications.</p> <p>Follow local acceptable use policies regarding technology.</p>	<p>Identify safe and responsible ways to use technology systems, the Internet including but not limited to social/professional networking, communication tools, and applications.</p> <p>Follow local acceptable use policies regarding technology.</p>
15.4.D Projects	Introduction to Google Docs, Slides, Sheets, and Sites	<p>Create a basic story using digital storytelling tools</p> <p>collaborate in pairs or small groups in the creation of a Google Doc</p>	Collaborate and provide peer feedback in Google Docs	<p>Demonstrate advanced technology skills, including compressing, converting, importing, exporting, and backing up files.</p> <p>Demonstrate collaborative skills using curriculum-related content in digital</p>	<p>Use digital tools to publish curriculum-related content.</p> <p>Demonstrate collaborative skills using curriculum-related content in digital environments.</p>

				environments.	
15.4.G Advanced Projects	learn how to embed more multimedia, such as images, sound, and video into a finished product (i.e. Narrated PowerPoint, Glogster, Animoto, Prezi)	create a multi-media presentation with images, sound, and video in at least 2 classes using digital or Web 2.0 tools	Create simple animations with Scratch. Create a simple app.	Create a product that integrates information from multiple software applications.	Use digital tools to defend solutions to authentic problems.
15.4.K Multimedia Project	Create a basic podcast (i.e. PowerPoint, Audioboo	Create a screencast with audio and screen capture (i.e. Jing)	Create a product using original multi-media content	Utilize software for image editing, compressing, and resizing; video editing; and audio editing.	
15.4.L Research and Citations	Identify fact from false information through the understanding of domain names (.org, com, edu, etc.)	Identify appropriate sources, useful information, bias and accuracy	Identify appropriate sources, useful information, bias and accuracy	Interpret copyright laws and policies with regard to ownership and use of digital content. Critique digital content for validity, accuracy, bias, currency, and relevance.	Evaluate digital content for validity, accuracy, bias, currency, and relevance.